

GENUS *FESTELLA* (ORTHOPTERA: TETTIGONIIDAE) WITH DESCRIPTION OF *F. RAMMEI* SP. N.¹

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ABSTRACT: The genus *Festella* was previously monotypic having only *F. festae*. A new species *Festella rammei* sp. n. is described and a key to both species presented including drawings of diagnostic characters. An evaluation is given about the relationships and distribution of the genus.

Festella is a monotypic genus established by Giglio-Tos (1894) to include *Ctenodecticus festae* Giglio-Tos (Giglio-Tos, 1893) from Palestine. Later, Ramme (1951) recorded this species from the south-eastern part of Turkey, though it is now obvious that there are many distinct differences between the populations from Palestine and Turkey.

Festella has a restricted distribution. It has been mentioned on only a few occasions, and only in lists dealing with Tettigoniidae (Kirby, 1906; Caudell, 1908; Rentz & Colless, 1990; Naskrecki & Otte, 1999).

Festella can be defined mainly by a combination of the following characters: broad (about 3 times as wide as scapus) and protrude (beyond scapus) fastigium, cylindrical pronotum, unarmed prosternum, fore tibia unarmed on dorso-anterior margin and armed with 4 spines on dorso-posterior margin, hind tibia with 4 apical spurs ventrally and plantulae much longer than metatarsus and up-curved ovipositor.

Relationships of the genus with other genera have been referred to in two studies (Caudell, 1908; Rentz & Colless, 1990). Caudell (1908) placed *Festella* in Decticiti with following genera, *Tettigonia* Linnaeus (including *Decticus* Serville and *Medecticus* Uvarov), *Idionotus* Scudder, *Psorodonotus* Brunner von Wattenwyl, *Clinopleura* Scudder, *Peranabrus* Scudder, *Plagiostira* Scudder. Rentz & Colless (1990) placed the genus in Platycleidini (the tribus is used by these authors in a much wider sense than the original usage by Zeuner, 1941) and Naskrecki & Otte (1999) followed this classification. In the phylogenetic tree produced by Rentz & Colless (1990; Fig. 3), the relationships of the genus occurs as (*Festella* + *Pterolepis* Rambur) + (*Elasmocercus* Chopard + *Bergiola* Stshelkanovtzev). According to the same authors, however, *Elasmocercus* and *Bergiola* belong to the Tettigoniini and not to the Platycleidini.

The object of this paper is to describe *Festella rammei* sp. n. and present a key to species of *Festella*, providing figures for both the new species and for

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F. festae. Some remarks are given concerning relationships and distribution of the genus.

Genus: *Festella* Giglio-Tos, 1894

Festella Giglio-Tos, 1894: 3.

Genus type: *Ctenodecticus festae* Giglio-Tos, 1893

Description.- Giglio-Tos (1894).

Key to Species:

- 1- Male cercus straight, with strong tooth medially on inner side (Fig. 1); male anal tergum with relatively short processes (Fig. 2); fifth sternum of female unmodified, subgenital plate with a deep quadrangular incision at hind margin (Fig. 4). . *festae*
 — Male cercus S shaped, toothed apically (Figs 7A,B,C); male anal tergum with long processes (Fig. 6); fifth sternum of female with a prominent tubercle in second half (Figs 9, 10), subgenital plate with a deep elliptical incision (Fig. 11) . *rammei* sp. n.

***Festella festae* (Giglio-Tos, 1893)**

(Figs 1-4, Table 1)

Ctenodecticus festae Giglio-Tos, 1893: 15. *Syntypes*, male(s) and female(s): PALESTINE, Haifa, Tiberias (Museo Zoologico di Torino, Italy) (not examined).

Material examined.- PALESTINE, Chedara, 16.vii.1931, 1 male, 1 female (R. Ebner) (Museum fur Naturkunde, Berlin); Reheboth, nr Jaffa, 1 female (J. Aharoni) (BM 1921-136); Kalan Saura, Tul Kareem, 14.vi.1922, 1 female (nymph) (P. A. Buxton) (BM 1923-530); Kakum, Tul Kareem, 15.vi.1922, 1 female (nymph) (P. A. Buxton) (BM 1923-530); Emek, ix, 1924, 1 female (W. S. Bodenheimer) (BM 1923-530); 1 female (W. S. Bodenheimer) (BM 1940-144); ISRAEL, 4 km east to Ashnath (st 11), 5.x.61, 1 male, 1 female (M. P. Pener) (BM 1964-184) (The Natural History Museum, London).

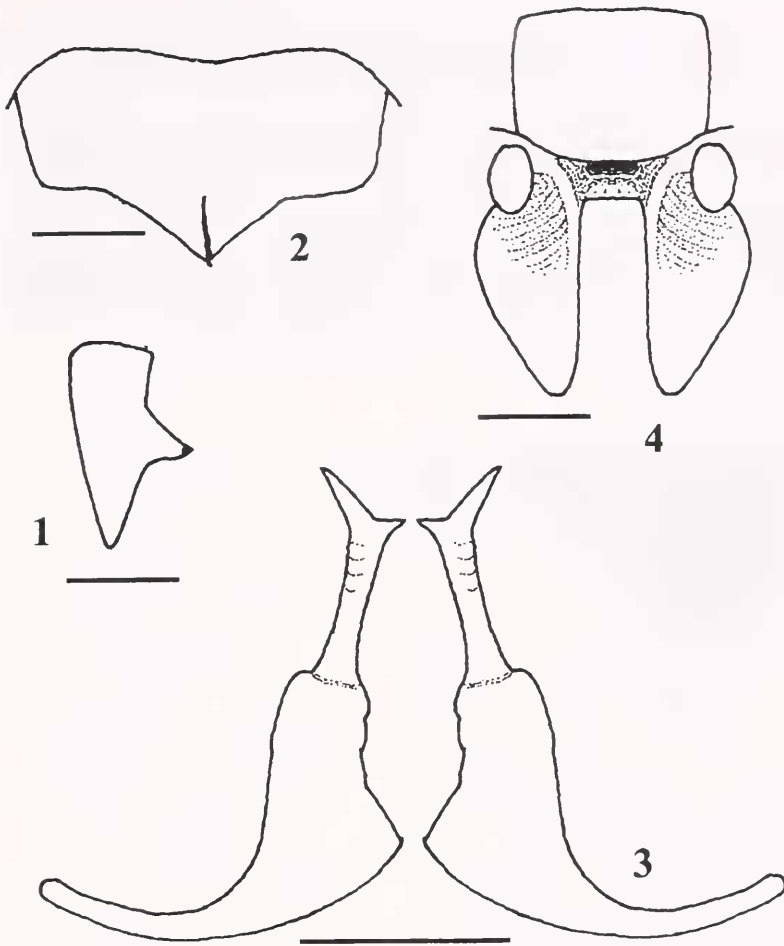
Description.- Giglio-Tos (1893) (figures are original).

Diagnosis.- Similar to the *F. rammei* sp. n. in general appearance, but differs in the male cercus with an internal tooth medially; male anal tergum with short processes; titillator with large basal arms and two spines on apical arms; the female fifth sterna without tubercle and the relatively small lateral sclerite of subgenital plate.

Table 1. Measurements for species of the genus *Festella* (in mm)

		Pronotum	Tegmina	Hind Femur	Ovipositor	Body Length
<i>F. festae</i>	male	6.9-7	2.1	22-24	—	20-24
	female	7	—	26-27	15-16.7	24-27
<i>F. rammei</i>	male	6.9-7.1	2-2.3	22.5-24.5	—	20-22
	female	6.9-7.8	—	24.5-26.5	14.7-17	20-23

(own measurements on material examined)



1-4 *Festella festae* 1- Male cercus (scale = 1 mm). 2- Male anal tergum (scale = 1 mm). 3- Titillators (scale = 1 mm). 4- Female subgenital plate (scale = 1 mm).

Festella rammei Çıplak sp. n.

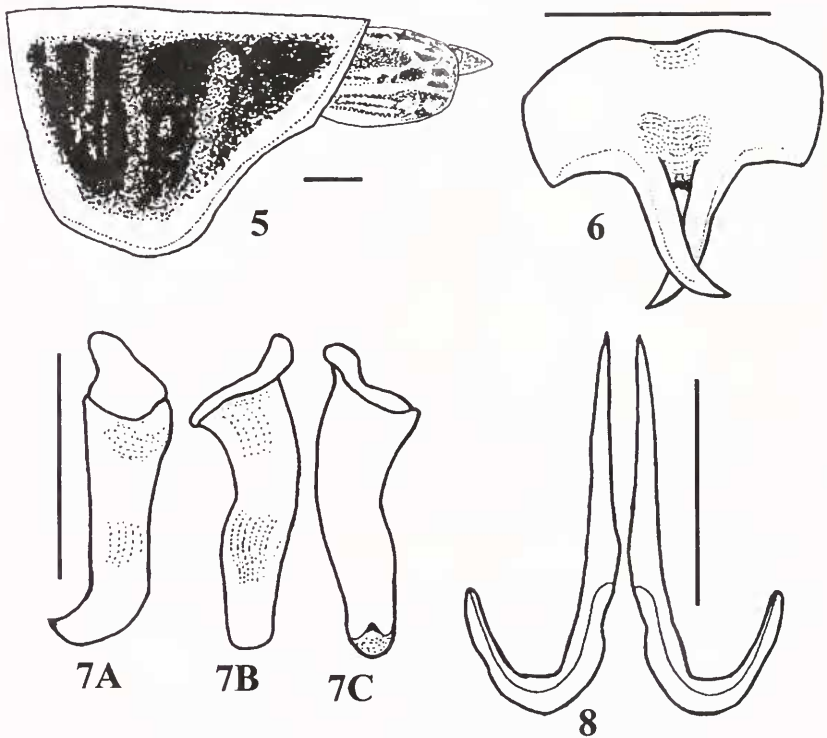
(Figs 5-12, Table 1)

Material examined.- *Holotype*, Male: TURKEY, Adana, Kozan, Taurus, 400 m, 14-15.vii.1937 (W. Ramme) (Museum für Naturkunde, Berlin). *Paratypes*: 7 males, 13 females, the same data as the type; Hatay, Iskenderun, Uluçınar, 24.vii.1976, 1 male (S. Salman); Hatay,

Dursunlu Köyü, 100 m, 18.vi.1995, 1 male (nymph); Hatay, Belen Geçidi, 740 m, 19.vi.1995, 2 males (nymphs), 1 female (nymph); Hatay, Belen, Taş Boğazı, 230 m, 19.vi.1995, 1 male (nymph) (B. Çıplak) (Akdeniz University, Zoological Museum, Antalya, Turkey).

Description (holotype, male).- Fastigium broad, about three times as wide as scapus and slightly protruding beyond it. Pronotum cylindrical, slightly raised above, without median and lateral carinae, lateral lobes slightly tapering ventrally, caudal margin widely obtuse. Tegmina short, barely reaching end of first abdominal tergum, narrowly rounded apically; hind femur long, swollen in the base, with 8-9 spinules on internal margin ventrally; plantulae of hind tibiae almost reaching second tarsal joint. Anal tergum large, furrowed medially, with few setae, with two long and incurved processes, deeply and narrowly incised medially; cerci strong, S shaped in basal 3/4, also curved before apex in a right angle, with a apical spine; subgenital plate longer than wide, with slender long styli. Titillators long, slender and smooth, apical arms straight and strongly tapering towards apex, basal arms roundly upcurved.

Female (paratype).- Barely larger than male. Fifth sternum with a strong projection in

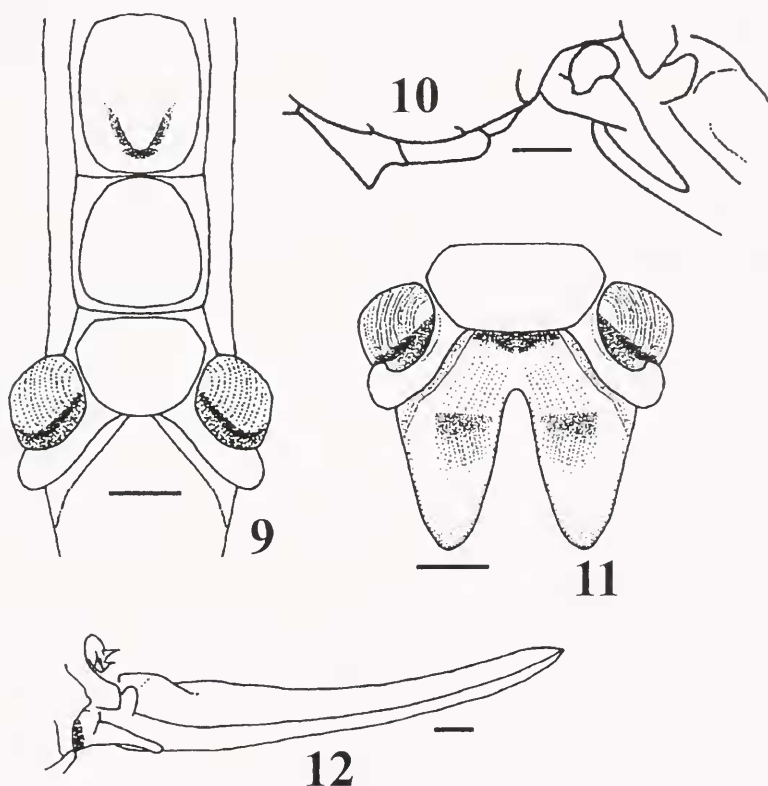


5-12 *F. ramnei* sp. n. 5- Male pronotum and tegmina, lateral view (scale = 1 mm). 6- Male anal tergum (scale = 1 mm). 7- Male cercus, A) lateral view B) dorsal view C) ventral view (scale = 1 mm). 8- Titillators (scale = 1 mm).

second half, sixth and seventh sterna not modified; subgenital plate with a deep-elliptical incision, lobes tapering apically, with lateral sclerites and rounded plates above them. Ovipositor longer than half of hind femur, strong, slightly upcurved.

Coloration.- Dirty yellow with blackish-brown lateral band, extending along each side from behind the eyes down the paranota (except light margin), to tip of abdomen. Hind femur with dark narrow stripe along middle of externo-medial area. Ovipositor slightly darker on margins.

Remarks.- *Festella rammei* sp. n. differs from *F. festae*, as described in the key, especially in the morphology of the male cerci and anal tergum, female fifth sternum and subgenital plate. However, overall habitus, measurements and coloration are very similar in both species.



9- Female fifth, sixth and seventh sterna, ventral view (scale = 1 mm). 10- Female fifth, sixth and seventh sterna and subgenital plate, lateral view (scale = 1 mm). 11- Female subgenital plate (scale = 1 mm). 12- Ovipositor (scale = 1 mm).

Etymology.- Named after Willy Ramme, who made many contributions to our knowledge on Orthoptera of Turkey.

DISCUSSION

Our current understanding of the phylogenetic relationships of Tettigoniinae bush-crickets is mainly based on morphological characters. However, there is no general agreement about the higher categories, and still no distinct synapomorphies for tribes or groups have been reported. Since the characters used for defining relationships of the genera are mostly incongruent within the subfamily, it will require extensive analyses to establish a reliable phylogenetic scheme.

Separation of Decticiti in key to genera established by Caudell (1908) is based on combination of the following characters: presence of apical spine on dorso-external margin of fore tibia, unarmed prosternum and two pairs of apical spurs of post tibiae apico-ventrally. Caudell, used 4 or 5 (more than 3) spines of fore tibia dorso-posteriorly to separate *Festella*, *Tettigonia* (including *Decticus* and *Medecticus*), *Idionotus*, *Psorodonotus*, *Clinopleura*, *Peranabrus*, *Plagiostira* from other genera of the Decticiti.

Rentz and Colless (1990) have a very different suggestion for relationship of the genus. Though in their phylogenetic tree the genus occurs as sister group with *Pterolepis* and these two genera share a common ancestor with *Elasmocercus* and *Bergiola*, they did not mention any synapomorphy shared by these genera. Additionally, they placed the genus in Platyceidini and Naskrecki & Otte (1999) followed this classification.

Though the phylogeny of the Tettigoniinae is in very premature state and characters are mostly incongruent, relationships of the genus with other genera can be defined on presence of 4 spines on dorso-posterior margin of the fore tibia. When this character is considered, *Festella* can be included in a group with the following genera of Tettigoniinae; *Anabrus* Haldeman, *Bucephaloptera* Ebner, *Capnobotes* Scudder, *Cryptophyllicus* Hebard, *Decticus*, *Ectopistidectes* Rentz, *Medecticus*, *Peranabrus*, *Pterolepis* and *Rhacocleis* Fieber.

This group of eleven genera, though they all share having 4 apical spines on the dorso posterior margin of the fore tibia, seems to be a heterogenous group in respect of many characters which have been used widely for separation within the genera of Tettigoniinae such as width of fastigium, lateral carinae of pronotum, armature of prosternum, male and female wing types, spines of fore tibia on dorso-anterior margin, number of ventro-apical spurs and length of plantulae of hind tarsus. The presence of prosternal spines is a character that separates *Capnobotes* (except 1 species, see Rentz & Birchim, 1968), *Cryptophyllicus*, *Ectopistidectes*, *Pterolepis* and *Rhacocleis* from the remaining 6 genera and *Festella*. However, when these genera are grouped according

to the number of apico-ventral spurs of the hind tibia, *Festella* remains with *Anabrus*, *Bucephaloptera*, *Capnobotes*, *Clinopleura*, *Cyrtophyllicus*, *Decticus* and *Medecticus* by having 2 pairs each, while the other four genera have 1 pair each.

The length of the plantulae on the hind tarsi is the character that grouping *Festella* with Eurasian genera and separating them from American genera and *Ectopistidectes*. Plantulae are less long as half of the length of metatarsus (at most as long as half of it) in *Anabrus*, *Capnobotes*, *Clinopleura*, *Cyrtophyllicus*, *Ectopistidectes*, and *Peranabrus*, but they are 3/4 length or longer in the other five genera and *Festella*. Among all of these genera, plantulae are as long as the metatarsus in *Bucephaloptera* and almost as long as the first two segments in *Festella*. Another character shared by *Festella*, *Bucephaloptera*, *Pterolepis* and *Rhacocleis* and separating them from *Decticus*, *Medecticus*, *Ectopistidectes* and American genera is absence of the lateral carinae of the pronotum.

As can be seen from the evaluation given above, *Festella* always groups with *Bucephaloptera* while it has one or more differences from others. Thus, it can be proposed that these two genera are closely related within Tettigoniinae (it is premature to say sister groups before a phylogenetic analysis of all genera of the subfamily has been done). *Festella* differs from all genera which have 4 spines on dorso-posterior margin of fore tibia by having wide but protruding fastigium, apterous female, plantulae of hind tibia much longer than metatarsus (almost reaching second tarsal joint), deeply divided female subgenital plate. Among these characters, null wings and deeply divided subgenital plate of the female seems unique. The protruding fastigium separates the genus from the genera given above, but is also shared by some of African (e.g. *Alfredectes* Rentz) and Australian (e.g. *Austroductes* Rentz) genera of the Tettigoniinae.

Two species of *Festella* are distributed on eastern coasts of the Mediterranean (Levant). *F. festae* is found in the south, in wet or dry shrubgrassland and its nymphs appear in early May and molt to adults as late as August (Ayal et al., 1999). *Festella rammei* sp. n. is recorded from the north part of the eastern Mediterranean coasts (south of Turkey, Hatay and Adana provinces, and possibly north-western Syria), associated with maqui vegetation. Its nymphs appear in early June and molt to adult in July. Thus, the genus is a typical Mediterranean faunal element, as mentioned by Ayal et al. (1999).

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(Continued from page 290)

1999, Executive Order on invasive species, and the formation of national and state councils to coordinate efforts to combat their establishment and spread. He cited Delaware's efforts as a model for other states.

Dr. Westbrooks stressed the relatively low level of preparedness of the U.S. to meet the invasive species threat. For example, the Bureau of Land Management has a budget of less than three million dollars to combat alien weeds on 270 million acres of Federal rangeland. He described his own experiences in quarantine and inspection, trying to stem the flow of exotics through our sea and airports. He cited the more advanced efforts of other countries such as Australia's AQIS. His talk was illustrated with numerous slides of exotic invaders, the habitats they are taking over and the work of APHIS inspectors.

In other notes of entomological interest, Roger Fuester pointed out that the publication of a name for the Holly Azure butterfly was reported on National Public Radio. He also commented on the continuing spread of the Asian longhorn beetle, an exotic pest of street and shade trees.

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Corresponding Secretary